

## **Altec Projects**

### **Design and Validation Using FEA and Prototyping**

Regularly design custom tow packages that include brackets and mounts for extra accessories, and validate the safety factor using SolidWorks Simulation. For one highly custom design I assisted in setting up a test stand to pull test a prototype of the model. Some examples of FEA studies I completed for Altec include a new hitch tray design that was verified to hold 500 lbs, a d-ring setup on a cargo floor was examined to determine if there was going to be any yielding, a boom rest assembly was analyzed to confirm it could handle the force of a unit stowing on it.

### **Standard Model Creation**

Created the SolidWorks model for a standard spotlight that had been updated by the supplier. I used the supplied 2D drawings and took measurements of the light to create an exact 3D model using advanced surface modeling tools. Also, I created the standard hydraulic capstan bracket that is used at each manufacturing plant across Altec.

### **Kaizen Events**

Identify and address several design improvements on multiple projects. For example, I identified a manufacturing defect present on a newly designed step latch. This prevented us from shipping over 30 trucks that would have caused excessive warranty claims and safety issues. Also, I worked with a team to determine body design and layout updates that improved quality and manufacturability. The changes implemented reduced throughput by 30% by skipping extra paint processes and there were 80% less warranty claims by the customer compared to previous models.

### **Inventory shortage**

The supplier for a standard strobe light that is used on every unit was unable to continue meeting our demand. I worked closely with upper management and purchasing to determine how best to use the remaining inventory and transition to an equivalent strobe light from a new supplier. This included analyzing all jobs that were driving the strobe and adjusting the bill of materials based on the lead time of the new strobe and production dates. We had to ensure we were consistent with the product we were delivering to customers and not mismatch the strobes. The transition went smoothly and there were no delays in production.

### **Standardized Design Review Process**

Co-led an event that revamped our engineering design review process. Created a new standard regarding our preliminary and final reviews. This included the creation of templates that efficiently captured the issues brought up during a review, as well as a Jira dashboard where the reviews are logged and processed with clear indicators of their status.

### **Production Communication Program**

Worked with a team to revamp our communication program where production questions are entered and answered by engineering. This involved functionality and layout improvements such as adding a feature to attach pictures to questions and answers. The program was developed in a .NET environment.

### **Saved money on warranty by detecting manufacturing defects prior to shipping units**

I was able to identify a manufacturing defect present on a step latch. This prevented us from shipping over 30 trucks that would have caused excessive warranty claims and safety issues. This is one of several issues I've identified and addressed on projects.